

CLAIMS

What is claimed is:

- 1 1. A method comprising:
2 transmitting data frames over a data connection through an interface of a first
3 network element data processing unit to a second network element data processing unit;
4 receiving an interface disable signal;
5 completing transmission of data frames currently being transmitted, upon
6 receiving an interface disable signal;
7 disabling the interface, the disabling not causing data loss;
8 receiving acknowledgements over the data connection; and
9 enabling the data connection after receiving a number of acknowledgements.
- 1 2. The method of claim 1, the disabling prohibiting sending frames over the data
2 connection, and the disabling allowing acknowledgements to be received over the data
3 connection.
- 1 3. The method of claim 2 comprising:
2 determining whether a number of acknowledgements has been received; and
3 sending a warning signal, upon determining that the number of
4 acknowledgements has not been received.
- 1 4. The method of claim 3, wherein the data connection disable signal is generated
2 periodically.
- 1 5. The method of claim 3, wherein the data connection disable signal is sent by a
2 user.

1 6. A method comprising:
2 disabling an interface between a first network element data processing unit and
3 a second network element data processing unit, the disabling prohibiting the first
4 network element from transmitting data frames to the second network element data
5 processing unit, the disabling allowing the second network element data processing unit
6 to transmit acknowledgements to the first network element data processing unit, the
7 disabling not causing data loss within the first and second network element data
8 processing units.

1 7. The method of claim 6, comprising:
2 completing a data frame transmission from the first network element data
3 processing unit to the second network element data processing unit, the data frame
4 transmission beginning before the disabling and ending after the disabling.

1 8. The method of claim 7 comprising:
2 determining whether a number of acknowledgements have been received; and
3 sending a warning, upon determining the number of acknowledgements has not
4 been received.

1 9. The method of claim 8, the disabling being performed periodically.

1 10. The method of claim 8, the disabling is performed upon a user's command.

1 11. The method of claim 9, wherein the data frames include data packets formatted
2 according a number of protocols.

1 12. The method of claim 10, wherein the number of protocols include
2 Asynchronous Transfer Mode (ATM), Internet Protocol (IP), Frame Relay, voice over
3 IP (voIP), Point-to-Point Protocol (PPP), Multi-Protocol Label Switching (MPLS), and
4 Ethernet.

1 13. A method comprising:

2 sending data frames from a first network element data processing unit over a
3 data connection before receiving acknowledgements over the data connection from a
4 second network element data processing unit, wherein a counter represents a number of
5 data frames that may be sent before receiving the acknowledgements, and wherein the
6 counter equal to zero indicates that no frames may be sent before acknowledgements
7 are received;

8 decrementing the counter when data frames are sent from the first network
9 element data processing unit;

10 incrementing the counter when acknowledgements are received from the second
11 network element data processing unit;

12 determining whether the counter is equal to zero;

13 disabling an interface between the first and second network element data
14 processing units, the disabling causing no data loss within the first and second network
15 element data processing units;

16 receiving acknowledgements in the first network element data processing unit,
17 after the disabling; and

18 enabling the interface when the counter equals a predetermined number.

1 14. The method of claim 13 comprising:

2 determining whether a number of acknowledgements has been received; and

3 sending an error signal, upon determining that the number of
4 acknowledgements has not been received.

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1 15. The method of claim 14, wherein the disabling prohibits the first network
2 element data processing unit from sending data frames over the data connection, and
3 wherein the disabling allows the second network element data processing unit to
4 receive acknowledgements over the data connection.

1 16. The method of claim 15, wherein the data connection disable signal is generated
2 periodically.

1 17. The method of claim 15, wherein the data connection disable signal is sent by a
2 user through a user interface.

1 18. An apparatus comprising:
2 a first network element data processing unit, the first network element data
3 processing unit to send acknowledgements and to receive data frames;
4 a second network element data processing unit, the second network element
5 data processing unit to send data frames and to receive acknowledgements; and
6 a data connection coupled to the first and second network data processing units,
7 the data connection to be disabled such that the first network element data processing
8 unit can send acknowledgements, but the second network element data processing unit
9 cannot send data frames.

1 19. The apparatus of claim 18, the second network element data processing unit to
2 determine whether a number of acknowledgements has been received, and to send a
3 warning signal, upon determining the number of messages has not been received.

1 20. The apparatus of claim 19, the data connection to be disabled periodically.

1 21. The apparatus of claim 20, the data connection to be disabled by a user through
2 a user interface.

1 22. The apparatus of claim 21, wherein the frames include data packets formatted
2 according a number of protocols.

1 23. The apparatus of claim 22, wherein the number of protocols include
2 Asynchronous Transfer Mode (ATM), Internet Protocol (IP), Frame Relay, voice over
3 IP (voIP), Point-to-Point Protocol (PPP), Multi-Protocol Label Switching (MPLS), and
4 Ethernet.

1 24. A machine-readable medium that provides instructions, which when executed
2 by a machine, cause said machine to perform operations comprising:
3 transmitting data frames over a data connection through an interface of a first
4 network element data processing unit to a second network element data processing unit;
5 receiving an interface disable signal;
6 completing transmission of data frames currently being transmitted, upon receiving an
7 interface disable signal;
8 disabling the interface, the disabling not causing data loss;
9 receiving acknowledgements over the data connection; and
10 enabling the data connection after receiving a number of acknowledgements.

11 25. The machine-readable medium of claim 24, wherein the disabling prohibiting
12 sending frames over the data connection, and the disabling allowing acknowledgements
13 to be received over the data connection.

1 26. The machine-readable medium of claim 25, comprising:
2 determining whether a number of acknowledgements has been received; and

3 sending a warning signal, upon determining that the number of
4 acknowledgements has not been received.

1 27. The machine-readable medium of claim 26, wherein the data connection disable
2 signal is generated periodically.

1 28. The machine-readable medium of claim 27, wherein the data connection disable
2 signal is generated by a user.

1 29. A machine-readable medium that provides instructions, which when executed
2 by a machine, cause said machine to perform operations comprising:
3 disabling an interface between a first network element data processing unit and
4 a second network element data processing unit, the disabling prohibiting the first
5 network element from transmitting data frames to the second network element data
6 processing unit, the disabling allowing the second network element data processing unit
7 to transmit acknowledgements to the first network element data processing unit, the
8 disabling not causing data loss within the first and second network element data
9 processing units.

1 30. The machine-readable medium of claim 29 comprising:
2 completing a data frame transmission from the first network element data
3 processing unit to the second network element data processing unit, the data frame
4 transmission beginning before the disabling and ending after the disabling.

1 31. The machine-readable medium of claim 30 comprising:
2 determining whether a number of acknowledgements have been received; and
3 sending a warning, upon determining the number of acknowledgements has not
4 been received.

1 32. The machine-readable medium of claim 31, the disabling being performed
2 periodically.

1 33. The machine-readable medium of claim 32, the disabling being performed upon
2 a user's command.

1 34. The machine-readable medium of claim 32, wherein the data frames include
2 data packets formatted according a number of protocols.

1 35. The machine-readable medium of claim 32, wherein the number of protocols
2 include Asynchronous Transfer Mode (ATM), Internet Protocol (IP), Frame Relay,
3 voice over IP (voIP), Point-to-Point Protocol (PPP), Multi-Protocol Label Switching
4 (MPLS), and Ethernet.

1 36 A machine-readable medium that provides instructions, which when executed
2 by a machine, cause said machine to perform operations comprising:
3 sending data frames from a first network element data processing unit over a
4 data connection before receiving acknowledgements over the data connection from a
5 second network element data processing unit, wherein a counter represents a number of
6 data frames that may be sent before receiving the acknowledgements, and wherein the
7 counter equal to zero indicates that no frames may be sent before acknowledgements
8 are received;

9 decrementing the counter when data frames are sent from the first network
10 element data processing unit;
11 incrementing the counter when acknowledgements are received from the second
12 network element data processing unit;
13 determining whether the counter is equal to zero;
14 disabling an interface between the first and second network element data
15 processing units, the disabling causing no data loss within the first and second network
16 element data processing units;
17 receiving acknowledgements in the first network element data processing unit,
18 after the disabling; and
19 enabling the interface when the counter equals a predetermined number.

1 37. The machine-readable medium of claim 36 comprising:
2 determining whether the number of acknowledgements has been received; and
3 sending an error signal, upon determining that the number of
4 acknowledgements has not been received.

1 38. The machine-readable medium of claim 37, wherein the disabling prohibits the
2 first network element data processing unit from sending data frames over the data
3 connection, and wherein the disabling allows the second network element data
4 processing unit to receive acknowledgements over the data connection.

1 39. The machine-readable medium of claim 38, wherein the data connection disable
2 signal is generated periodically.

1 40. The machine-readable medium of claim 39, wherein the data connection disable
2 signal is sent by a user activating an option of a graphical user interface.